PATENT

GLIDE ASSEMBLY FOR CONDUIT BODIES

This application claims the benefit of U.S. Provisional Application Serial No. 60/263,864 filed January 24, 2001.

FIELD OF THE INVENTION:

The present invention relates generally to a conduit body containing electrical wires and more particular to a conduit body having a glide assembly that reduces friction associated with wires being pulled through the conduit body.

BACKGROUND OF THE INVENTION:

Electrical conduit systems are required in order to safely provide electric power to homes, commercial buildings, and the like. These conduit systems often include long runs of rigid electrical conduits with frequent changes in direction, such as 90° turns, and interruptions with various couplings to accommodate bends or changes in direction. The conduits themselves serve to provide a protective housing for the wires therein and to route these wires throughout the building or other installation as required. Conduits are typically constructed of a rigid metal pipe.

Conduit bodies are often installed in the conduit systems at various locations to provide accesses to the wires in the conduits, or to route the wires through a bulkhead, an electrical equipment enclosure, a junction box, or other electrical fixture. Conventional conduit bodies can have openings at one or more ends as well as through the upper and lower walls.

Typically, wires are inserted through an opening on the bottom or side of the conduit body and out through another opening located along another side or top of the conduit body. The

friction caused by rubbing of the wires against the edges of the hub access port of the conduit body makes it difficult to pull the wire through the conduit housing, especially if there are many bends along the conduit length. While power pullers are used for this purpose, it is not unusual for the puller cords to break, leaving a partially pulled wire end that is very difficult to access within the conduit. In addition, the friction of the wire insulation rubbing against the edges of openings of the conduit body may damage the insulation on the wires.

Attempts to minimize such friction associated with the rubbing of wires against the openings of conduit bodies have been less than satisfactory. For instance, some manufacturers have inserted roller pins and smooth shields to minimize the friction. However, these attempts to minimize such friction do not satisfactorily address the problem.

Accordingly, it is desirable to reduce the friction associated with wires rubbing against the inside of the openings of a conduit body.

SUMMARY OF THE INVENTION:

The present invention, which addresses the needs of the prior art, relates to a conduit body assembly including an elongate sidewall, at least one hub, and a glide member. The conduit body has an open upper end, a closed lower end, and a conduit body interior. The hub extends from the body in communication with the body interior and defines an access port for passage of wire therethrough. The glide member is arranged within the body interior adjacent to the access port for providing reduced frictional engagement with wire passing through the access port.

In a further aspect of the invention, a conduit body assembly is provided including an elongate sidewall, a lower wall, a plurality of hubs, a plurality of glide bar holders, and at least one lubricious glide bar. The sidewall has an upper end and a lower end. The upper end has a rim along a perimeter thereof and defines a conduit body opening. The lower wall is connected to the lower end of the sidewall. Each hub extends from one of either the sidewall or the lower wall and defines an access port. The glide bar holders each include a pair of opposed U-shaped

members connected to an interior of the sidewall proximate to one of the access ports. Each glide bar is configured so as to be releasably attachable to an associated glide bar holder.

The present invention also relates to a method of pulling wires through a conduit body, where the conduit body includes an elongate sidewall having an open upper end, a closed lower end, and a conduit body interior, at least one hub extending from the body in communication with the body interior and defining an access port for passage of wire therethrough, at least one glide bar supported by said sidewall, and at least one pair of glide bar holders on said sidewall. The method includes the steps of: placing a glide bar over a glide bar holder, wherein the glide bar holder includes a pair of opposed protrusions connected to the conduit body interior proximate to the access port for wires and the glide bar includes a U-shaped member having lips at ends thereof that may be urged over the glide bar holder; and pulling the wire through the access port of the conduit body into the conduit body interior.

With the foregoing and additional features in mind, this invention will now be described in more detail, and other benefits and advantages thereof will be apparent from the following detailed description when taken in conjunction with the accompanying drawings, in which like elements are identically numbered throughout the several views.

BRIEF DESCRIPTION OF DRAWINGS:

FIG. 1 is a cross-sectional view of the conduit body assembly of the present invention.

FIG. 2A is a perspective view of the top of the conduit body assembly of the present invention showing an embodiment of a glide bar holder.

FIG. 2B is a perspective view of the top of the conduit body assembly of the present invention according to FIG. 2A, showing a glide bar in place over the glide bar holder.

FIG. 3 is a perspective view of a glide bar for a conduit body assembly of the present invention.

FIG. 4 is a side view of the conduit body assembly of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT:

The present invention provides a conduit body assembly for use in electrical systems such as electrical conduit systems through which it is often difficult to pull wires without causing damage to the wire itself or the insulation surrounding the wire. The conduit body assembly of the present invention provides a conduit body having an access port or ports through which wires may be pulled. A glide member is provided proximal to the access port of a hub through which a wire or wires are to be pulled so that rather than risk being damaged or abraded by rough edges of the access port, the wire slides over a glide that is smooth.

In a preferred aspect of the invention, the glide assembly is arranged in the conduit body and includes a glide bar releasably attached to a pair of glide bar holders such that the pulling action on the wires helps secure the glide member onto the glide bar holders.

In a further desirable aspect of the invention, the glide bar prevents access of the wires to a rough edge of the access port.

Referring to FIG. 1, a cross sectional view of the conduit body with glide assembly of the present invention is shown. Conduit body assembly 10 includes an elongate generally tubular member or conduit body 12, openings 34 and 36 for wires (not shown) and glide assembly 42.

Conduit body 12 is an elongate generally tubular shaped member including an upwardly extending sidewall 14 having an open upper end 16 and a closed lower end 18. The lower end 18 of sidewall 14 perimetrically bounds a lower wall 20 of the conduit body 12. The sidewall 14 and lower wall 20 together define a conduit body interior 22. The interior 22 may be enclosed

by cover 14 over open upper end 16. Sidewall 14 defines at the open upper end 16 a generally oval-shaped smooth planar rim 24. Rim 24 includes at its opposite ends a pair of inwardly directed lips 23, as shown in FIG. 2A and 2B.

Conduit body 12 further includes a pair of tubular projections or hubs 30 and 32 extending outwardly from conduit body interior 22. Hubs 30 and 32 are in communication with conduit body interior 22 and serve as points of attachment for conduits (not shown). Each hub 30 and 32 ends in a circular opening or access port, 34 and 36, respectively. Access ports 34 and 36 have an inner diameter substantially equal to an outer diameter of an exterior of a conduit (not shown) so as to accommodate a conduit therein. The conduits may be attached to the conduit body 12 in any conventional manner, including but not limited to via an adhesive, a bonding agent or a mechanical device, such as a male/female threading.

FIGS. 2A and 2B are perspective top views show the glide assembly 38 of the present invention. In FIG. 2A, a glide bar holder 40 is shown. In this preferred aspect, the glide bar holder 40 is a pair of U-shaped members placed on opposed portions of the sidewall 14. Referring now to FIG. 2B, a glide assembly 38 is shown including a glide bar 46 and glide bar holder 40. The glide bar holder 40 is capable of securing the glide bar 46 to conduit body 12. In particular, glide bar lips 42 and 44 effectively hold glide bar 46 to conduit body 12 by snapping into place onto glide bar holder 40. As seen in FIG. 1, an alternative aspect of the glide bar holder 40 is shown as a protruding member 48 having an indentation 50 over which the glide bar lips 42 and 44 can be releasably connected. In a preferred aspect of the present invention, the glide bar holder 40 includes a pair of protruding members opposed to one another on the sidewall 14. The glide bar 46 can be releasably connected to both protruding members 40 for added support during use of the conduit body assembly 10. Other configurations and locations of a glide bar holder 40 which effectively secure the glide bar 46 in place and protect wires are contemplated, but not shown.

Referring again to FIG. 2B, the glide assembly 38 is shown in a conduit body 12 according to the present invention. The glide assembly 38 can be used in the following manner.

Wire (not shown) will enter the conduit body 12, for example, through access port 34 of hub 30. The wire will be pulled under glide bar 46 and out through open upper end 16. Any wire attachment or other required electrical work is then performed. A cover (not shown) or other appropriate piece may be placed over the upper end 16 upon completion of the work.

Desirably, glide bar 46 is an elongate smooth, U-shaped structure having lips 42 and 44 on the open ends of the U-shape as shown in FIG. 3. Other configurations of glide bar 46 that facilitate the sliding of wires through a conduit body 12 with minimal friction are contemplated, but not shown.

Referring now to FIG. 4, a side view of the conduit body assembly of the present invention is shown. In this view, a section of glide bar 46 can be seen through side opening 25. Thus, glide bar 46 limits access of wires (not shown) to an upper edge of the hub 30 over which wires would normally be pulled. As a result, the wires glide past a smooth surface of the glide bar 46 and avoid risk of contact with rough edges or excess friction when being pulled into the conduit body 12.

The design of the glide assembly 38 of the present invention allows for wires to be pulled directly through the conduit with minimal friction caused by the wires rubbing against the inside edges of the hub 30. As wires are pulled through the conduit body 12, they tend to bend and rub against the inside edges of the hub 30. Glide bar 46 is located in the conduit body 12 so that wires rub against it rather than the conduit body 12. Thus, glide bar 46 of the present invention minimizes the friction associated with pulling the wires through the conduit body and facilitates the movement of the electrical wires through the conduit body 12. Additionally, the glide bar 46 of the present invention protects wires from damage that may be caused by the wires rubbing against the inside edges of the body 12. Once the movement of wires through the conduit body 12 ceases, the glide bar 46 may be snapped out of its holder 40 and removed from the conduit body 12 for reuse in a next installation or may be discarded.

Desirably, the glide bar 46 is of a lubricious nature. Desirable materials for the glide bar 46 include, but are not limited to, nylon, polyethylene terephthalate (PET), polytetrafluoroethylene (PTFE), and the like. Most desirably, the glide bar 46 is a self-lubricating material such as PTFE.

Referring again to FIG. 1, conduit body assembly 10 may also provide a cover 28 that is positionable over open upper end 16 of the conduit body 12. Cover 28 has a smooth, essentially uninterrupted surface that conforms to the rim 24 of the upper end 16. Desirably, cover 28 has an oval-like shape corresponding to that of conduit body 12. The cover 28 may be transparent for easy viewing of inside cavity 21.

The conduit body 10 and cover 28 are desirably made of a metallic material, non-metallic material or a combination thereof. Useful metallic materials include aluminum, steel and the like. Useful non-metallic materials include polyvinyl chloride, nylons, high density polyethylene and combinations thereof. The cover 28 and conduit body 12 may be a vacuum form plastic member.

It will be apparent that the present invention has been described herein with reference to certain preferred or exemplary embodiments. The preferred or exemplary embodiments described herein may be modified, changed, added to, or deviated from without departing from the intent, spirit and scope of the present invention, and it is intended that all such additions, modifications, amendments and/or deviations be included within the scope of the following claims.